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Dark matter clumps (subhalos) and annihilation signal

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The review of analytic studies of DM-clump production, evolution and destruction is presented. In the standard scenario of adiabatic and Gaussian fluctuations the clump formation starts at MD epoch and proceeds in the hierarchical structures when a small clump belongs to a host clump, this host clump is submerged to bigger one etc. The formation of density profile $\rho(r) \propto r^{-\beta}$

with $\beta \approx 1.7 - 1.9$ is accompanied by the tidal

destruction of the clumps. Only a small fraction of clumps survive. Much attention is given to formation and size of the the core. The role of adiabatic protection of the core is discussed for the processes of clump destruction in the hierarchical structures and Milky Way. The minimal clump mass is provided by wiping off the fluctuations during and after kinetic decoupling and depends on elementary-particle model for DM particles. The minimal mass can vary in the wide range of values. The boost factor (amplification of annihilation signal) is discussed. It is concluded that within parameter uncertainties in the standard adiabatic scenario and especially in non-standard scenarios resulting in superdense clumps, the annihilation-signal amplification can be large.

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